TYPE STUDIES IN THE HYDNACEAE[1]— I. THE GENUS MANINA

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The segregation of fungal forms proposed under the generic name *Manina* was first established with practically its present conception and limitations by Scopoli in 1772 in a work entitled "Dissertationes ad scientiam naturalem pertinentes." This work was a small treatise covering, as its title implies, a wide range of subjects and was in fact only part of a still wider ranging series of papers. The greater part of the work is devoted to subjects in mineralogy, but it also contains a short paper entitled "Plantae subterraneae descriptae et delineatae." This latter paper is often cited by the older mycologists but always simply as "Plantae subterraneae," which as we see is part of a subtitle, and the incomplete citation has made it difficult to locate the original paper. The work in which it appears is rare and a copy was found only in the library of the British Museum. Although the work is obscure and somewhat inaccessible at present, it appears to have been well known to the older mycologists and is of special interest to us because of its containing one of the earliest truly natural segregations out of that assemblage of plants known today as the Hydnaceae.

The name *Manina,* diminutive from the Italian *Mano,* a hand, was first proposed by Adanson in the "Familles des Plantes" 2: 5. 1763. Adanson published the name citing in connection therewith "coralloides Micheli *Pl. 88. f. 2 and 6.*"

Micheli's genus as shown both by his description and figures was undoubtedly the branched forms of our more modern genus *Clavaria.* Adanson's genus, therefore, if it were to be recognized, would properly belong to the family of the Clavariaceae, but the genus was not established according to the code here followed.

Scopoli took up Adanson's name and republished it in his

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"Dissertationes ad scientiam Naturalem pertinentes" 97. 1772, where he used it as the name of a new genus and formed several binomial combinations, thus establishing the genus according to our present rules. The first species in this new genus was named by Scopoli *Manina cordiformis* which, therefore, becomes its type. Both the description and the illustration of this species show it to be clearly and unquestionably the species which has long been familiar to mycologists as *Hydnum Erinaceus* Bull. The species associated with this in the genus *Manina* by Scopoli are also the same type of forms as we have usually associated with *H. Erinaceus* and which have been likewise segregated by later mycologists under various names. The genus *Manina* Scop. is, therefore, both technically and logically the genus to which should be referred *Hydnum Erinaceus* Bull. = *Manina cordiformis* Scop. and its natural congeners *Hydnum coralloides* Scop., *H. Caput-ursi* Fr., etc.

In a previous paper[2] the writer referred this group of species to the genus *Hericium* Persoon, "Neues Mag. für die Bot." 1: 109. 1794. The latter was based on the single species *Hydnum coralloides* Scop. and now becomes a metonym of *Manina* Scop. It was strongly suspected at the time that the latter name had priority but it was impossible then to confirm the fact. As later treated by Persoon, *Hericium* was congeneric with *Manina*.[3]

The genus *Medusina* Chevallier, "Fl. Gen. des Env. de Paris." 278. 1826, was based on *M. patula* Chev. = *Manina cordiformis* Scop. and is, therefore, a typonym of *Manina*. Chevallier's genus was also evidently strictly congeneric with Scopoli's. The genus *Friesites* Karsten, "Medd. Soc. Faun. et Fl. Fenn." 5: 41. 1879, and the genus *Dryodon* Quélet; Karsten, "Rev. Myc." 3[1]: 19. 1881, were both established on *Hydnum coralloides* Scop. They are, therefore, typonyms of *Hericium* Pers. and hence metonyms of *Manina* Scop., with which they are apparently also congeneric.

In this connection it is necessary to discuss the proposed names and the status of another so-called genus although it might

[2] Mem. Torrey Bot. Club 12: 112. 1906.

[3] Cf. Persoon, Comment. de Fung. Clavaef. in Holmskiold Coryph. Clav. 155. 1797.

be ignored on technical grounds. In the same work cited above, Adanson published the genus *Martela* based on "*Agaricum* Micheli *pl. 64. f. 1 and 2;* Battara, *pl. 33. f. C;* Corallo fungus Vaillant Botanicon *pl. 8. f. 1.*" This genus, like his *Manina,* was not established according to modern rules. It is, however, important to note that from the citations it included a somewhat heterogeneous collection of forms. The citations from Battarra and Vaillant indicate branched forms of *Clavaria* similar to Adanson's *Manina.* The citation from Micheli is of more interest. The second figure is clearly a form belonging in *Manina* Scop. and is quite typical of the genus. Figure 1 is the form since known as *Hydnum hystricinum* Batsch = *Hydnum Hystrix* (Pers.) Fr. So far as *Martella* Adans. has any type this species must be considered its type. The species both of Batsch and of Fries appears to have been based on Micheli's figure and it appears very doubtful if the form represents a good species. The figure shows a short cylindric stipe terminating above in numerous straight, diverging, erect teeth.

In 1770, Scopoli took up Adanson's name in "Anni historico-naturales" 4: 151 and established it as a genus under the form *Martella*[4] by publishing it with the species *Martella Echinus* Scop. as the type. This latter species differed from Micheli's plant only in being yellow in color and having the teeth or spines fistulose. It is evident, therefore, that *Martella* as conceived both by Adanson and Scopoli stood for forms in which the teeth or spines stood erect, pointing upward and were not pendent as in the case of *Manina* Scop. *Martella* Scop., therefore, is strictly congeneric with *Hericium* Fries as treated in Fries, "Hymenomycetes Europeae" 617.

We must now turn aside to consider the status of the genus *Hericium* Fries. This genus was published by Fries in his "Systema Orbis Vegetabilis," p. 88, in 1825 and he there definitely stated that it was not to be confused with *Hericium* Pers., the type of which he asserted was *Hydnum coralloides.* It seems probable that Fries' conception of *Hericium* Pers. was that of *Manina* Scop. What was his conception of his own *Hericium?*

[4] This appears to be the correct form, as the word is doubtless from the Italian *Martello,* a scourge.

In the work cited he did not publish any species with his genus nor did he form any binomials, but he cited "Hydna Gomphi" from a previous work, "Syst. Myc." 1: 409. 1821. In this latter work the genus *Hydnum* is divided into sections, one of which is designated "Hydna Gomphi" and consists of four species in the following order: *Hydnum Caput-medusae* (Bull.) Pers.; *H. Hystrix* (Pers.) Fr.; *H. Echinus* (Scop.) Fr. and *H. ramarium* Fr. These four species, therefore, constitute the *Hericium* of Fries as published in 1825. It must be noted that according to our code the type of the genus is *Hydnum Caput-medusae*. This species, however, is of somewhat uncertain standing. If a good species, as generally understood, it belongs to the genus *Manina* Scop., and in that case *Hericium* Fr. becomes a metonym of *Manina* Scop. and also of *Hericium* Pers. Yet Fries expressly and emphatically asserts that his genus is distinct from *Hericium* Pers. If now we consider the remaining species of Fries' genus, it appears evident that his own conception of *Hericium* Fr. is that of *Martella* Scop. This is also confirmed by his later treatment of his genus and by his incidental comments. In the "Hymenomycetes Europeae," p. 617, he published his genus *Hericium* with four species which included only two of the original list. These four species were *Hericium Notarisii* (Inz.) Fr.; *H. Echinus* (Scop.) Pers.; *H. Hystrix* (Pers.) Fr.; and *H. alpestre* Pers. and Fries points out that *Hericium* differs from *Hydnum* in that the teeth are not pendent but are erect, pointing upward. In this work *Hydnum Caput-medusae* and *H. ramarium* have been retained in the genus *Hydnum* and are associated with *Hydnum coralloides* Scop. in the tribe *Merisma,* the type of *Hericium* Pers., which Fries expressly stated was not the same as his own *Hericium*. It appears, therefore, that technically *Hericium* Fries is a metonym of *Manina* Scop. The name of course is untenable, being superceded by *Hericium* Pers. As treated in "Hymenomycetes Europeae," *Hericium* Fr. is a synonym of *Martella* Scop.

The species and the genus appear, however, more or less doubtful. *Hydnum hystricinum* Batsch and all its synonyms appear to have been based on Micheli's figure (Nov. Pl. Gen. *pl. 64. f. 1*), and outside of that figure seems to be wholly unknown. *Martella*

Echinus Scop. is evidently known only from Scopoli's original description, "Anni historico-naturales" 4: 151. 1770.[5] The work is little known and we have not seen a copy. So far as later descriptions give one a conception of the plant, it appears that it might be some form of a branching *Clavaria*. *Hydnum Notarisii* Inz. and *H. alpestre* Pers. are the only species of the genus of which authentic specimens are in existence. The specimen of *H. Notarisii* Inz. on which Fries based his description and comments is now preserved in the herbarium at Upsala. It has every appearance of being a form of *Hydnum Erinaceus* Bull. with an unusually long stipe. There appears to be nothing whatever about the specimen to suggest but that it grew with the teeth pendent. The statement "Ob clavam oblique deflexam aculei horizontaliter porrecti" appears to be based on accidental inversion of the plant. Inzenga's type has not been seen unless the Friesian specimen is a part of it. In the herbarium of Persoon at Leyden was found a small piece of a specimen marked "*Hericium alpestre* (Helvetia)." This had every appearance of being a fragment of *H. coralloides* Scop. and we do not believe the Persoonian species is distinct from the latter, at least, it is certainly of the same genus.

From our present knowledge of these forms the most that can be said is that *Martella* Scop. (=*Hericium* Fr. "Hym. Eur." 617) is a genus of very doubtful standing. The genus *Manina* Scop., however, is a well-defined genus that has long been recognized by mycologists under various names.

MANINA Scop. Diss. Sci. Nat. 1: 97. 1772. Type *Manina cordiformis* Scop.

Hericium Pers. Neues Mag. für die Bot. 1: 109. 1794. Type, *Hydnum coralloides* Scop.

Hericium Fries, Syst. Orb. Veg. 88. 1825, pro parte. Type, *Hydnum Caput-medusae* (Bull.) Pers.

Medusina Chev. Fl. Gen. des Env. de Paris 278. 1826. Type *Medusina patula* Chev.

[5] Cited from Persoon, Comment. de Fung. Clavaef. 160. Scopoli's work has not been seen. Pritzel gives the number of pages in "Anni historico-naturales" 4 as 150.

Friesites Karst. Medd. Soc. Faun. et Fl. Fenn. **5**: 41. 1879. Type, *Hydnum coralloides* Scop.

Dryodon Quél.; Karst. Rev. Myc. 3^1: 19. 1881. Type, *Hydnum coralloides* Scop.

1. MANINA FLAGELLUM Scop. Diss. Sci. Nat. 97. *pl. 11.* 1772

Hydnum laciniatum Leers, Fl. Herb. 276. 1775.

Hydnum ramosum Bull. Hist. de Champ. de la France, 305. *pl. 390.* 1791.

Hydnum abietinum Schrad. Spic. Fl. Germ. 181. 1794.

Medusina coralloides Chev. Fl. Gen. des Env. de Paris, **1**: 279. 1826.

The type specimen of none of the above named species is known to be in existence. The synonymy has, therefore, been determined by a comparison of the original descriptions and figures. Scopoli's figure well represents a form which we have heretofore referred to *H. laciniatum* Leers, but the form is not what we consider as typical of Leers's species, as the branches are too long and slender, yet it does not appear to be specifically distinct.

2. **Manina coralloides** (Scop.)

Hydnum coralloides Scop. Fl. Carn. **2**: 472. 1772.

None of Scopoli's types are in existence so far as known. The species described by him as *H. coralloides* has been long well known and frequently described and figured under his name by other authors, but has been more or less confused with forms which we regard as belonging to the segregation that should be referred to *Manina flagellum* Scop. Scopoli did not include this species in his earlier work, in which he established the genus *Manina,* and in none of his later works did he retain his genus, going back instead to the older genus *Hydnum.* Curiously, therefore, the above combination is now made for the first time nearly one hundred and fifty years after the genus and the species had been described by their common author.

3. **Manina Caput-ursi** (Fries)

Hydnum Caput-ursi Fries, Monog. Hym. Suec. **2**: 278. 1863.

No specimen whatever under the above name was found in the herbarium of Fries at Upsala, nor does the species appear to be well represented in any of the European herbaria. So far as can be judged from such poor fragmentary material as the herbaria furnish no well-defined distinction exists between *Hydnum Caput-ursi* Fr. and *H. Caput-medusae* (Bull.) Pers.

4. MANINA CORDIFORMIS Scop. Diss. Sci. Nat. 97. *pl. 10.* 1772.

Hydnum Erinaceus Bull. Hist. de Champ. de la France, 304. *pl. 34.* 1791.

Hericium grandis Raf. Prec. des Decouv. Somiol. 50. 1814.

Steccherinum quercinum S. F. Gray, Nat. Arr. Brit. Pl. **1**: 651. 1821.

Medusina patula Chev. Fl. Gen. des Env. de Paris, **1**: 279. 1826.

Type specimens of none of the forms described under the above names are known to exist. The species, however, is a striking and well-known form that often attracts attention, and there seems to be no reason to question the correctness of the synonymy. The species has generally been known under the name of Bulliard. Scopoli's figure *loc. cit.* shows most clearly that his *M. cordiformis* is the typical form that is everywhere referred to *H. Erinaceus* Bull. The law of priority, therefore, demands that his names should prevail and we have restored it to the species.

5. **Manina Schiedermayeri** (Heufl.)

Hydnum Schiedermayeri Heufler, Osterr. Bot. Zeitschrift **20**: 33. 1870.

The type specimen of this species has not been seen and our conception of the characters is based upon American plants which we have referred here from comparison with the published descriptions and figures. To judge from these American forms, the species departs widely from the generic type and would appear to belong to the resupinate-effused type of structure. Fries, however, regarded the species as of this alliance and the conspicuous

tubercles with pendent teeth, together with the spore characters, suggest at least a close affiliation with the genus *Manina*. We have previously referred this species to "*Hydnum croceum* Schw." On a recent re-examination of Schweinitz's herbarium we have had the good fortune to discover his specimens under this name and it appears very evident that they are not distinct from his *Phlebia hydnoides*. We have, therefore, restored the name of Heufler to this species.

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